

## SeqListing.txt

<110> ImClone Systems Incorporated  
 <120> Fully Human Antibodies Directed Against the Human  
 Insulin-Like Growth Factor-1 Receptor  
 <130> 11245/53276  
 <140> To Be Assigned  
 <141> 2004-05-03  
 <150> 60/467,177  
 <151> 2003-05-01

<160> 33  
 <170> Microsoft Word 97

<210> 1  
 <211> 390  
 <212> DNA  
 <213> Human

<400> 1

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 48  
 Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser  
                     5                    10                    15

tcg gtg aag gtc tcc tgc aag gct tct gga ggc acc ttc agc agc tat  
 96  
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr  
                     20                    25                    30

gct atc agc tgg gtg cga cag gcc cct gga caa ggg ctt gag tgg atg 1  
 44  
 Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
                     35                    40                    45

gga ggg atc atc cct atc ttt ggt aca gca aac tac gca cag aag ttc 1  
 92  
 Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe  
                     50                    55                    60

cag ggc aga gtc acg att acc gcg gac aaa tcc acg agc aca gcc tac 2  
 40  
 Gln Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr  
                     65                    70                    75                    80

atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg tat tac tgt 2  
 88  
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
                     85                    90                    95

gcg aga gcg cca tta cga ttt ttg gag tgg tcc acc caa gac cac tac 3  
 36  
 Ala Arg Ala Pro Leu Arg Phe Leu Glu Trp Ser Thr Gln Asp His Tyr

## SeqListing.txt

100 105 110

tac tac tac tac atg gac gtc tgg ggc aaa ggg acc acg gtc acc gtc 3  
84  
Tyr Tyr Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val  
115 120 125

tca agc 3  
90  
Ser Ser  
130

<210> 2  
<211> 130  
<212> PRT  
<213> Human

<400> 2

Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser  
5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr  
20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe  
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr  
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Ala Pro Leu Arg Phe Leu Glu Trp Ser Thr Gln Asp His Tyr  
100 105 110

Tyr Tyr Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr Val Thr Val  
115 120 125

Ser Ser  
130

<210> 3  
<211> 1440  
<212> DNA  
<213> Human

## SeqListing.txt

&lt;400&gt; 3

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48
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
5 10 15

gta cat tca gag gtc cag ctg gtg cag tct ggg gct gag gtg aag aag
96
Val His Ser Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

cct ggg tcc tcg gtg aag gtc tcc tgc aag gct tct gga ggc acc ttc 1
44
Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe
35 40 45

agc agc tat gct atc agc tgg gtg cga cag gcc cct gga caa ggg ctt 1
92
Ser Ser Tyr Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60

gag tgg atg gga ggg atc atc cct atc ttt ggt aca gca aac tac gca 2
40
Glu Trp Met Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala
65 70 75 80

cag aag ttc cag ggc aga gtc acg att acc gcg gac aaa tcc acg agc 2
88
Gln Lys Phe Gln Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser
85 90 95

aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg 3
36
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
100 105 110

tat tac tgt gcg aga gcg cca tta cga ttt ttg gag tgg tcc acc caa 3
84
Tyr Tyr Cys Ala Arg Ala Pro Leu Arg Phe Leu Glu Trp Ser Thr Gln
115 120 125

gac cac tac tac tac tac tac atg gac gtc tgg ggc aaa ggg acc acg 4
32
Asp His Tyr Tyr Tyr Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr
130 135 140

gtc acc gtc tca agc gcc tcc acc aag ggc cca tcg gtc ttc ccc ctg 4
80
Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
145 150 155 160

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## SeqListing.txt

gca 28	ccc	tcc	tcc	aag	agc	acc	tct	ggg	ggc	aca	gcg	gcc	ctg	ggc	tgc	5
Ala	Pro	Ser	Ser	Lys 165	Ser	Thr	Ser	Gly	Gly 170	Thr	Ala	Ala	Leu	Gly 175	Cys	
ctg 76	gtc	aag	gac	tac	ttc	ccc	gaa	ccg	gtg	acg	gtg	tcg	tgg	aac	tca	5
Leu	Val	Lys	Asp 180	Tyr	Phe	Pro	Glu	Pro 185	Val	Thr	Val	Ser	Trp 190	Asn	Ser	
ggc 24	gcc	ctg	acc	agc	ggc	gtg	cac	acc	ttc	ccg	gct	gtc	cta	cag	tcc	6
Gly	Ala	Leu 195	Thr	Ser	Gly	Val	His 200	Thr	Phe	Pro	Ala	Val 205	Leu	Gln	Ser	
tca 72	gga	ctc	tac	tcc	ctc	agc	agc	gtg	gtg	acc	gtg	ccc	tcc	agc	agc	6
Ser	Gly 210	Leu	Tyr	Ser	Leu	Ser 215	Ser	Val	Val	Thr	Val 220	Pro	Ser	Ser	Ser	
ttg 20	ggc	acc	cag	acc	tac	atc	tgc	aac	gtg	aat	cac	aag	ccc	agc	aac	7
Leu 225	Gly	Thr	Gln	Thr	Tyr 230	Ile	Cys	Asn	Val	Asn 235	His	Lys	Pro	Ser	Asn 240	
acc 68	aag	gtg	gac	aag	aaa	gtt	gag	ccc	aaa	tct	tgt	gac	aaa	act	cac	7
Thr	Lys	Val	Asp	Lys 245	Lys	Val	Glu	Pro	Lys 250	Ser	Cys	Asp	Lys	Thr 255	His	
aca 16	tgc	cca	ccg	tgc	cca	gca	cct	gaa	ctc	ctg	ggg	gga	ccg	tca	gtc	8
Thr	Cys	Pro	Pro 260	Cys	Pro	Ala	Pro	Glu 265	Leu	Leu	Gly	Gly	Pro 270	Ser	Val	
ttc 64	ctc	ttc	ccc	cca	aaa	ccc	aag	gac	acc	ctc	atg	atc	tcc	cgg	acc	8
Phe	Leu	Phe 275	Pro	Pro	Lys	Pro	Lys 280	Asp	Thr	Leu	Met	Ile 285	Ser	Arg	Thr	
cct 12	gag	gtc	aca	tgc	gtg	gtg	gtg	gac	gtg	agc	cac	gaa	gac	cct	gag	9
Pro	Glu 290	Val	Thr	Cys	Val	Val 295	Val	Asp	Val	Ser	His 300	Glu	Asp	Pro	Glu	
gtc 60	aag	ttc	aac	tgg	tac	gtg	gac	ggc	gtg	gag	gtg	cat	aat	gcc	aag	9
Val 305	Lys	Phe	Asn	Trp	Tyr 310	Val	Asp	Gly	Val	Glu 315	Val	His	Asn	Ala	Lys 320	
aca 08	aag	ccg	cgg	gag	gag	cag	tac	aac	agc	acg	tac	cgg	gtg	gtc	agc	10

## SeqListing.txt

Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	
				325					330					335		
gtc	ctc	acc	gtc	ctg	cac	cag	gac	tgg	ctg	aat	ggc	aag	gag	tac	aag	10
56																
Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	
			340					345					350			
tgc	aag	gtc	tcc	aac	aaa	gcc	ctc	cca	gcc	ccc	atc	gag	aaa	acc	atc	11
04																
Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	
		355					360					365				
tcc	aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	cca	cag	gtg	tac	acc	ctg	ccc	11
52																
Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	
	370					375					380					
cca	tcc	cgg	gag	gag	atg	acc	aag	aac	cag	gtc	agc	ctg	acc	tgc	ctg	12
00																
Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	
385					390					395					400	
gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	tgg	gag	agc	aat	12
48																
Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	
				405					410					415		
ggg	cag	ccg	gag	aac	aac	tac	aag	acc	acg	cct	ccc	gtg	ctg	gac	tcc	12
96																
Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	
			420					425					430			
gac	ggc	tcc	ttc	ttc	ctc	tac	agc	aag	ctc	acc	gtg	gac	aag	agc	agg	13
44																
Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	
		435					440					445				
tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	tcc	gtg	atg	cat	gag	gct	ctg	13
92																
Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	
	450					455					460					
cac	aac	cac	tac	acg	cag	aag	agc	ctc	tcc	ctg	tct	ccg	ggt	aaa	tga	14
40																
His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys		
465					470					475				479		

<210> 4  
 <211> 479  
 <212> PRT

## SeqListing.txt

&lt;213&gt; Human

&lt;400&gt; 4

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly  
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Val His Ser Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys  
20 25 30  
Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe  
35 40 45  
Ser Ser Tyr Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu  
50 55 60  
Glu Trp Met Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala  
65 70 75 80  
Gln Lys Phe Gln Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser  
85 90 95  
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val  
100 105 110  
Tyr Tyr Cys Ala Arg Ala Pro Leu Arg Phe Leu Glu Trp Ser Thr Gln  
115 120 125  
Asp His Tyr Tyr Tyr Tyr Tyr Met Asp Val Trp Gly Lys Gly Thr Thr  
130 135 140  
Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu  
145 150 155 160  
Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys  
165 170 175  
Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser  
180 185 190  
Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser  
195 200 205  
Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser  
210 215 220  
Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn  
225 230 235 240  
Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His  
245 250 255

## SeqListing.txt

Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val  
 260 265 270  
 Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr  
 275 280 285  
 Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu  
 290 295 300  
 Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys  
 305 310 315 320  
 Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser  
 325 330 335  
 Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys  
 340 345 350  
 Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile  
 355 360 365  
 Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro  
 370 375 380  
 Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu  
 385 390 395 400  
 Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn  
 405 410 415  
 Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser  
 420 425 430  
 Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg  
 435 440 445  
 Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu  
 450 455 460  
 His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
 465 470 475 479

<210> 5  
 <211> 327  
 <212> DNA  
 <213> Human

<400> 5

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 48



## SeqListing.txt

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Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala Leu Gly Gln
      5                      10                      15
aca gtc agg atc aca tgc caa gga gac agc ctc aga agc tat tat gca
96
Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala
      20                      25                      30
agc tgg tac cag cag aag cca gga cag gcc cct gta ctt gtc atc tat    1
44
Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
      35                      40                      45
ggt aaa aac aac cgg ccc tca ggg atc cca gac cga ttc tct ggc tcc    1
92
Gly Lys Asn Asn Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser
      50                      55                      60
agc tca gga aac aca gct tcc ttg acc atc act ggg gct cag gcg gaa    2
40
Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala Gln Ala Glu
      65                      70                      75                      80
gat gag gct gac tat tac tgt aac tcc cgg gac aac agt gat aac cgt    2
88
Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Asn Ser Asp Asn Arg
      85                      90                      95
ctg ata ttt ggc ggc ggg acc aag ctg acc gtc ctc agt    3
27
Leu Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser
      100                      105                      109

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<210> 6  
 <211> 109  
 <212> PRT  
 <213> Human

<400> 6

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Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala Leu Gly Gln
      5                      10                      15
Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala
      20                      25                      30
Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
      35                      40                      45
Gly Lys Asn Asn Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser
      50                      55                      60

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## SeqListing.txt

Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala Gln Ala Glu  
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Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Asn Ser Asp Asn Arg  
85 90 95

Leu Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser  
100 105 109

<210> 7

<211> 702

<212> DNA

<213> Human

<400> 7

atg gga tgg tca tgt atc atc ctt ttt cta gta gca act gca act gga  
48

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly  
5 10 15

gta cat tca tct tct gag ctg act cag gac cct gct gtg tct gtg gcc  
96

Val His Ser Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala  
20 25 30

ttg gga cag aca gtc agg atc aca tgc caa gga gac agc ctc aga agc 1  
44

Leu Gly Gln Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser  
35 40 45

tat tat gca agc tgg tac cag cag aag cca gga cag gcc cct gta ctt 1  
92

Tyr Tyr Ala Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu  
50 55 60

gtc atc tat ggt aaa aac aac cgg ccc tca ggg atc cca gac cga ttc 2  
40

Val Ile Tyr Gly Lys Asn Asn Arg Pro Ser Gly Ile Pro Asp Arg Phe  
65 70 75 80

tct ggc tcc agc tca gga aac aca gct tcc ttg acc atc act ggg gct 2  
88

Ser Gly Ser Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala  
85 90 95

cag gcg gaa gat gag gct gac tat tac tgt aac tcc cgg gac aac agt 3  
36

Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Asn Ser  
100 105 110

## SeqListing.txt

```

gat aac cgt ctg ata ttt ggc ggc ggg acc aag ctg acc gtc ctc agt   3
84
Asp Asn Arg Leu Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser
    115                120                125

cag ccc aag gct gcc ccc tcg gtc act ctg ttc ccg ccc tcc tct gag   4
32
Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu
    130                135                140

gag ctt caa gcc aac aag gcc aca ctg gtg tgt ctc ata agt gac ttc   4
80
Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe
145                150                155                160

tac ccg gga gcc gtg aca gtg gcc tgg aag gca gat agc agc ccc gtc   5
28
Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val
                165                170                175

aag gcg gga gtg gag acc acc aca ccc tcc aaa caa agc aac aac aag   5
76
Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys
                180                185                190

tac gcg gcc agc agc tat ctg agc ctg acg cct gag cag tgg aag tcc   6
24
Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser
    195                200                205

cac aga agc tac agc tgc cag gtc acg cat gaa ggg agc acc gtg gag   6
72
His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu
    210                215                220

aag aca gtg gcc cct gca gaa tgc tct tga   7
02
Lys Thr Val Ala Pro Ala Glu Cys Ser
225                230                233

<210> 8
<211> 233
<212> PRT
<213> Human

<400> 8
Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly
    5                10                15

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## SeqListing.txt

Val His Ser Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala  
 20 25 30  
 Leu Gly Gln Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser  
 35 40 45  
 Tyr Tyr Ala Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu  
 50 55 60  
 Val Ile Tyr Gly Lys Asn Asn Arg Pro Ser Gly Ile Pro Asp Arg Phe  
 65 70 75 80  
 Ser Gly Ser Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala  
 85 90 95  
 Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Asn Ser  
 100 105 110  
 Asp Asn Arg Leu Ile Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Ser  
 115 120 125  
 Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu  
 130 135 140  
 Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe  
 145 150 155 160  
 Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val  
 165 170 175  
 Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys  
 180 185 190  
 Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser  
 195 200 205  
 His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu  
 210 215 220  
 Lys Thr Val Ala Pro Ala Glu Cys Ser  
 225 230 233

<210> 9  
 <211> 327  
 <212> DNA  
 <213> Human

<400> 9

tct tct gag ctg act cag gac cct gct gtg tct gtg gcc ttg gga cag  
 48

## SeqListing.txt

Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala Leu Gly Gln  
5 10 15

aca gtc agg atc aca tgc caa gga gac agc ctc aga agc tat tat gca  
96

Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala  
20 25 30

acc tgg tac cag cag aag cca gga cag gcc cct att ctt gtc atc tat 1  
44

Thr Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ile Leu Val Ile Tyr  
35 40 45

ggt gaa aat aag cgg ccc tca ggg atc cca gac cga ttc tct ggc tcc 1  
92

Gly Glu Asn Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser  
50 55 60

agc tca gga aac aca gct tcc ttg acc atc act ggg gct cag gca gaa 2  
40

Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala Gln Ala Glu  
65 70 75 80

gat gag gct gac tac tat tgt aaa tct cgg gat ggc agt ggt caa cat 2  
88

Asp Glu Ala Asp Tyr Tyr Cys Lys Ser Arg Asp Gly Ser Gly Gln His  
85 90 95

ctg gtg ttc ggc gga ggg acc aag ctg acc gtc cta ggt 3  
27

Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
100 105 109

<210> 10  
<211> 109  
<212> PRT  
<213> Human

<400> 10

Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala Leu Gly Gln  
5 10 15

Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala  
20 25 30

Thr Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ile Leu Val Ile Tyr  
35 40 45

Gly Glu Asn Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser  
50 55 60

## SeqListing.txt

Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala Gln Ala Glu  
 65 70 75 80  
 Asp Glu Ala Asp Tyr Tyr Cys Lys Ser Arg Asp Gly Ser Gly Gln His  
 85 90 95  
 Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 100 105 109

<210> 11  
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 <212> DNA  
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<400> 11

atg gga tgg tca tgt atc atc ctt ttt cta gta gca act gca act gga  
 48  
 Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly  
 5 10 15  
 gta cat tca tct tct gag ctg act cag gac cct gct gtg tct gtg gcc  
 96  
 Val His Ser Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala  
 20 25 30  
 ttg gga cag aca gtc agg atc aca tgc caa gga gac agc ctc aga agc 1  
 44  
 Leu Gly Gln Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser  
 35 40 45  
 tat tat gca acc tgg tac cag cag aag cca gga cag gcc cct att ctt 1  
 92  
 Tyr Tyr Ala Thr Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ile Leu  
 50 55 60  
 gtc atc tat ggt gaa aat aag cgg ccc tca ggg atc cca gac cga ttc 2  
 40  
 Val Ile Tyr Gly Glu Asn Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe  
 65 70 75 80  
 tct ggc tcc agc tca gga aac aca gct tcc ttg acc atc act ggg gct 2  
 88  
 Ser Gly Ser Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala  
 85 90 95  
 cag gca gaa gat gag gct gac tac tat tgt aaa tct cgg gat ggc agt 3  
 36  
 Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Lys Ser Arg Asp Gly Ser  
 100 105 110

## SeqListing.txt

ggt caa cat ctg gtg ttc ggc gga ggg acc aag ctg acc gtc cta ggt 3  
 84  
 Gly Gln His Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 115 120 125

cag ccc aag gct gcc ccc tcg gtc act ctg ttc ccg ccc tcc tct gag 4  
 32  
 Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu  
 130 135 140

gag ctt caa gcc aac aag gcc aca ctg gtg tgt ctc ata agt gac ttc 4  
 80  
 Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe  
 145 150 155 160

tac ccg gga gcc gtg aca gtg gcc tgg aag gca gat agc agc ccc gtc 5  
 28  
 Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val  
 165 170 175

aag gcg gga gtg gag acc acc aca ccc tcc aaa caa agc aac aac aag 5  
 76  
 Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys  
 180 185 190

tac gcg gcc agc agc tat ctg agc ctg acg cct gag cag tgg aag tcc 6  
 24  
 Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser  
 195 200 205

cac aga agc tac agc tgc cag gtc acg cat gaa ggg agc acc gtg gag 6  
 72  
 His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu  
 210 215 220

aag aca gtg gcc cct gca gaa tgc tct tga 7  
 02  
 Lys Thr Val Ala Pro Ala Glu Cys Ser  
 225 230 233

<210> 12  
 <211> 233  
 <212> PRT  
 <213> Human

<400> 12

Met Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr Gly  
 5 10 15

## SeqListing.txt

Val His Ser Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala  
 20 25 30  
 Leu Gly Gln Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser  
 35 40 45  
 Tyr Tyr Ala Thr Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Ile Leu  
 50 55 60  
 Val Ile Tyr Gly Glu Asn Lys Arg Pro Ser Gly Ile Pro Asp Arg Phe  
 65 70 75 80  
 Ser Gly Ser Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala  
 85 90 95  
 Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Lys Ser Arg Asp Gly Ser  
 100 105 110  
 Gly Gln His Leu Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly  
 115 120 125  
 Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu  
 130 135 140  
 Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe  
 145 150 155 160  
 Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val  
 165 170 175  
 Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys  
 180 185 190  
 Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser  
 195 200 205  
 His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu  
 210 215 220  
 Lys Thr Val Ala Pro Ala Glu Cys Ser  
 225 230 233

<210> 13  
 <211> 15  
 <212> DNA  
 <213> Human

<400> 13

agc tat gct atc agc  
 15



## SeqListing.txt

Ser Tyr Ala Ile Ser  
5

<210> 14  
<211> 5  
<212> PRT  
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<400> 14

Ser Tyr Ala Ile Ser  
5

<210> 15  
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<212> DNA  
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<400> 15

ggg atc atc cct atc ttt ggt aca gca aac tac gca cag aag ttc cag.  
48

Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe Gln  
5 10 15

ggc  
51  
Gly  
17

<210> 16  
<211> 17  
<212> PRT  
<213> Human

<400> 16

Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe Gln  
5 10 15

Gly  
17

<210> 17  
<211> 63  
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## SeqListing.txt

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gcg cca tta cga ttt ttg gag tgg tcc acc caa gac cac tac tac tac  
48Ala Pro Leu Arg Phe Leu Asp Trp Ser Thr Gln Asp His Tyr Tyr Tyr  
5 10 15tac tac atg gac gtc  
63Tyr Tyr Met Asp Val  
20

&lt;210&gt; 18

&lt;211&gt; 21

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 18

Ala Pro Leu Arg Phe Leu Asp Trp Ser Thr Gln Asp His Tyr Tyr Tyr  
5 10 15Tyr Tyr Met Asp Val  
20

&lt;210&gt; 19

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 19

caa gga gac agc ctc aga agc tat tat gca agc  
33Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala Ser  
5 10

&lt;210&gt; 20

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 20

Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala Ser  
5 10

&lt;210&gt; 21

## SeqListing.txt

<211> 21  
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<400> 21

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21  
Gly Lys Asn Asn Arg Pro Ser  
5

<210> 22  
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<212> PRT  
<213> Human

<400> 22

Gly Lys Asn Asn Arg Pro Ser  
5

<210> 23  
<211> 33  
<212> DNA  
<213> Human

<400> 23

aac tcc cgg gac aac agt gat aac cgt ctg ata  
33  
Asn Ser Arg Asp Asn Ser Asp Asn Arg Leu Ile  
5 10

<210> 24  
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<400> 24

Asn Ser Arg Asp Asn Ser Asp Asn Arg Leu Ile  
5 10

<210> 25  
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## SeqListing.txt

&lt;400&gt; 25

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33Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala Thr  
5 10

&lt;210&gt; 26

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 26

Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala Thr  
5 10

&lt;210&gt; 27

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 27

ggt gaa aat aag cgg ccc tca  
21Gly Glu Asn Lys Arg Pro Ser  
5

&lt;210&gt; 28

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Human

&lt;400&gt; 28

Gly Glu Asn Lys Arg Pro Ser  
5

&lt;210&gt; 29

&lt;211&gt; 33

&lt;212&gt; DNA

&lt;213&gt; Human

&lt;400&gt; 29

aaa tct cgg gat ggc agt ggt caa cat ctg gtg  
33

## SeqListing.txt

Lys Ser Arg Asp Gly Ser Gly Gln His Leu Val  
5 10

<210> 30  
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<400> 30

Lys Ser Arg Asp Gly Ser Gly Gln His Leu Val  
5 10

<210> 31  
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<220>  
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<400> 31

agcggataac aatttcacac agg  
23

<210> 32  
<211> 21  
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<220>  
<223> synthetic primer

<400> 32

gtcgtctttc cagacgttag t  
21

<210> 33  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide linker

<400> 33

SeqListing.txt

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
5 10 15